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Illinois State Geological Survey



ISGS Research

Scientists at the Illinois State Geological Survey (ISGS) have conducted research, collected data, and reported their findings on the state's geology and mineral resources since 1905.

ISGS programs have two primary objectives—to strengthen Illinois' economy by promoting the responsible development of mineral resources, and to improve the lives of Illinois' citizens by providing information vital for sound environmental practices and policies.

Geologic Research

Reliable earth science information is required by Illinoisans facing a broad range of issues—waste disposal, land-use planning, lakeshore erosion, groundwater protection, and many others.

Since its founding, the ISGS has served as a repository for a wealth of information, much of it unavailable elsewhere. Hundreds of thousands of oil- and water-well records, drilling cores, sample cuttings, fossils, coal exploration tests, maps, computer files, and other information make up one of the largest databases of its kind. This growing database—and the Survey experts who manage and interpret it—constitute a vital resource for researchers, industry, and the public.

Only through the interpretation and evaluation of detailed geologic data can Illinoisans ensure that the land and its resources are used wisely.



Engineering Geologists at the ISGS monitor the effects of mine subsidence on earth materials overlying active mines. Data collected on the extent of surface subsidence will be used by coal companies to determine stresses that can occur on houses and land, and to develop plans in advance to repair damage.

Environmental Geology

In the 1960s, ISGS programs were the first in the nation to apply geological principles to environmental concerns: groundwater protection, waste management, resource-based land-use planning, contaminated sediments in lakes and rivers, and geologic hazards such as landslides and earthquakes.

The environmental assessment program, also known as "geology for planning," helps cities and counties deal with the increasing pressures and complexities of making land-use decisions. ISGS scientists study the geology of a county or region in detail and present their findings as maps and reports that are easily usable by local officials, builders, and engineers.



Geologists in the Groundwater Protection program study the long-term movement of contaminants buried in the fine-grained sediments. Field teams install monitoring wells and piezometers to measure the hydraulic conductivity—a measure of the rate of flow of water in earth materials.

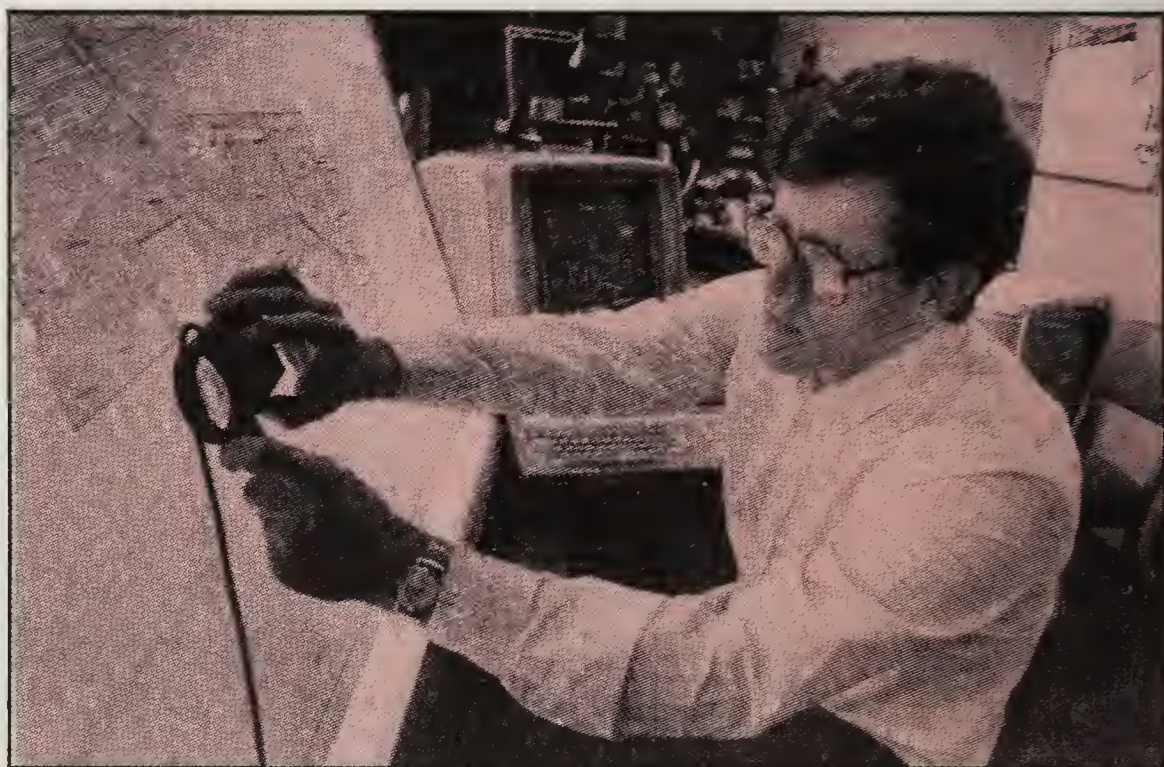


ISGS coastal geologists on board the research vessel, Neptune, discuss their findings after the first day's mapping of a lake-bottom site—a newly discovered submerged forest about 8,000 years old 80 feet deep in the waters of southern Lake Michigan.

Geologic Mapping

As essential tools for resource management and land use, geologic maps alert state and local officials to areas vulnerable to groundwater contamination and natural hazards, assist engineers and county planners to evaluate sites proposed for waste disposal, and alert planners and investors to potential groundwater and other mineral resources available for development.

Advances in computer mapping and map-making have greatly enhanced the Survey's capability to present geological and environmental information in practical, easy-to-understand formats.



Mineral Resources

The ISGS has been active in development of the state's resources since 1905. Researchers examine new exploration and extraction practices, map deposits, study mineral characteristics, and work with industry and the public to devise recovery strategies that are efficient and environmentally safe. Scientists today are studying how to reduce the sulfur content—and thus improve the marketability—of Illinois coal, how to improve the recovery of oil from existing fields in the Illinois Basin, and how to balance mineral extraction and population growth in urban areas.

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Education and Public Service

Publishing scientific reports, helping young people learn about geology, and working with community leaders to plan wise land use are a few of the educational activities performed by ISGS staff. Scientists conduct workshops and field trips, exhibit their work and give talks around the country, advise other governmental officials, and respond to inquiries from thousands of people who contact the ISGS every year.

Educational Resources

The ISGS conducts four all-day field trips each year to acquaint the public with the state's landscape, mineral resources, and the geological processes that have led to their origin. The free tours include frequent stops to explore, discuss, and collect rocks and fossils.

Publications, rock and mineral sets, and other classroom materials have been distributed to thousands of Illinois schools. ISGS geologists conduct teacher workshops, help teachers and students identify rocks and fossils, and are always ready to answer questions about Illinois' geology.



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Publications

Each year the ISGS distributes thousands of publications, including reports, posters, brochures, and maps. Exhibits and illustrated talks are produced for public and professional gatherings. Scientists give many interviews to the press; press releases on current and critical research are issued regularly. Each year, scientists and support staff respond to more than 15,000 telephone inquiries and discuss ISGS results with more than 4,000 visitors.

Geologists conduct professional and educational workshops and give talks regularly to inform industry and the public about Illinois' geology and ISGS research.



Direct Assistance

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The ISGS assists Illinoisans through many programs and services. Geologists may help a landowner discover the most promising locations to drill for water, or they may advise a governor's task force on the risk of earthquakes in Illinois. Oil and gas geologists may sponsor an industrywide workshop on the latest oil-exploration techniques, or an environmental assessment team work with county officials to provide the geologic data necessary to site a new landfill.